ABSTRACT OF THE DISCLOSURE

A joint detection reception apparatus and method, which are utilized irrespective of a length of an orthogonal code in a TD-CDMA communication system. The joint detection reception method for creating a system matrix associated with a joint detection receiver in the same time slot includes the steps of a) repeating and partitioning individual channelization codes having variable lengths, and creating channelization code blocks having the same lengths, b) performing a convolution operation between the repeated and partitioned channelization code blocks and a channel impulse response, and acquiring combined impulse responses, c) grouping the combined impulse responses to construct sub-block matrices for a joint detection system, d) arranging the sub-block matrices for the joint detection system to be shifted by a predetermined column distance, and constructing a joint detection system matrix, and e) extending the joint detection system matrix to a squared-format matrix to create a block-circulant squared matrix.